



Cornell and Bassett Hospital researchers discover biological reason for obese mothers abandoning breast-feeding early

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ITHACA, N.Y. -- Studies have shown that overweight and obese mothers are significantly more likely to quit breast-feeding their infants sooner than do healthy-weight mothers. An important reason why is the weaker biological response that heavier women have to their babies' suckling, according to a study conducted by researchers at Cornell University and Bassett Hospital in Cooperstown, N.Y.

"We found that overweight and obese women have a lower prolactin response to suckling," says Kathleen Rasmussen, professor of nutritional sciences at Cornell and the lead researcher of the study, which is published in the journal *Pediatrics* (Vol. 113, No. 5, May 2004). Prolactin is a hormone produced by the pituitary gland that stimulates the mammary glands to produce milk soon after birth.

"This lower prolactin response to suckling would be expected to compromise the ability of overweight and obese women to produce milk and, over time, lead to a significantly shorter period of breast-feeding," she adds.

Rasmussen and her co-author, Chris L. Kjolhede of Bassett Hospital, measured concentrations of prolactin and progesterone in 40 mothers just before and 30 minutes after breast-feeding, at 48 hours after delivery and again a week after birth. Some of the women were overweight or clinically obese with a body mass index (BMI) -- a calculation based on the relationship of weight to height -- of at least 26 before conception. Some were not overweight.

The researchers found that the overweight and obese women produced dramatically less prolactin 48 hours after birth and moderately less seven days after birth compared with the women who were not overweight. They found no significant differences in progesterone values. Progesterone helps maintain pregnancy and helps trigger milk production as soon as its levels fall after giving birth. Since fat tissue concentrates progesterone, the researchers had hypothesized that this additional source of progesterone in overweight women might delay milk production. However, the study did not support this hypothesis. Rasmussen says that although obese women might have trouble breast-feeding for a combination of physical reasons, the new study is the first to find a biological reason.

In 1997 Rasmussen reported that overweight and obese mothers were 2.5 to 3.6 times, respectively, less successful in starting breast-feeding than mothers who were not overweight, and the heavier the mother, the less successful she was at breast-feeding. In 2001 Rasmussen reported that normal-weight women who gain more than the 24 to 35 pounds during pregnancy recommended by the Institute of Medicine are 74 percent more likely to be unsuccessful at breast-feeding than mothers who observe these guidelines. However, women who are obese before pregnancy do not further increase their already high risk of lactation failure, regardless of their weight gain after conception.

Whether and how long mothers breast-feed is important because breast milk can protect children from a variety of childhood illnesses, says Rasmussen, and the benefits increase with longer durations of nursing. Breast-feeding, for example, can boost infants' immune systems and provide protection against numerous diseases, such as some cancers, bowel disease, juvenile rheumatoid arthritis, allergies, asthma and eczema. Breast-fed infants also grow faster and have a lower risk of obesity as adults. Some research even indicates that breast-feeding leads to optimal brain development. The United States public health goals, spelled out in the publication *Healthy People 2010*, call for 75 percent of the nation's new mothers to start breast-feeding, 50 percent to continue for six months and 25 percent for 12 months.

"We're a long way from those goals nationally. At the present time, 64 percent of women breast-feed right after pregnancy, but only 29 percent continue for at least six months," Rasmussen says.

"Although women should begin pregnancy at a healthy weight and gain reasonably during pregnancy, not all will," says Rasmussen. Overweight and obese women who give birth should consult with a lactation expert, she advises, to be sure they receive adequate breast-feeding education before being discharged from the hospital. Ideally, she says, they also should receive follow-up support to help them continue to breast-feed.

Related World Wide Web sites: The following sites provide additional information on this

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For an electronic copy of the paper

<http://pediatrics.aappublications.org/cgi/content/full/113/5/e465>

Kathleen Rasmussen

<http://www.human.cornell.edu/faculty/facultybio.cfm?netid=kmr5&facs=1>

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